

ISDN LAYER 3 NATIONAL VARIANT (AT&T : 5ESS)

User Manual for Protocol Tester K1197

SIEMENS AG

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INTRODUCTION

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1. INTRODUCTION

This guide is intended to provide the information necessary for using the Layer 3 Decoder commands in Test Manager environments. The Layer 3 Software provides a set of predefined constants for Message Type, Information Element and Octet Identifiers, which are used as parameters for the Decoder commands (described in the ISDN TEST MANAGER Manual) as well as for the FORTH programming method of message building (described in the ISDN EMULATION / SIMULATION Manual).

Additionally the Layer 3 Software provides predefined **selector** constants which may be used to access a particular information element field and the possible **field values**. Consequently it is possible to avoid the use of decimal, hexadecimal and binary values when decoding/building Layer 3 messages within Test Manager scenarios. Therefore the test scripts are easier to read and understand.

The following sections list all these predefined constants for the specific variant of Layer 3 Software. Section 2 lists the defined constants that can be used as **Message Type Identifier**, Section 3 lists the **Information Element (IE) Identifiers**, while Section 4 provides a list of the **Octet Identifiers**.

Section 5 describes the predefined timers, while Section 6 provides various **selectors** and **field values** for each octet contained in an Information Element, which can be used in conjunction with the command ***DEC / *COD** to access/set specific fields within an Information Element.

(see the ISDN TEST MANAGER Manual, \$10 [access] or the ISDN EMULATION / SIMULATION Manual, \$6 [set]).

2. MESSAGE TYPE IDENTIFIER

2.1. ONE-OCTET MESSAGES

Message Identifier	AT&T Reference
M#ALERT	Alerting
M#CALL_PROC	Call Proceeding
M#CONN	Connect
M#CONN_ACK	Connect Acknowledge
M#PROG	Progress
M#SETUP	Setup
M#SETUP_ACK	Setup Acknowledge
M#DISC	Disconnected
M#REL	Release
M#REL_COM	Release Complete
M#REST	Restart
M#REST_ACK	Restart Acknowledge
M#INFO	Info
M#STATUS	Status
M#STATUS_ENQ	Status Enquiry

2.2. TWO-OCTET MESSAGES

Message Identifier	AT&T Reference
M#CONF	Conference
M#CONF_ACK	Conference Acknowledge
M#CONF_REJ	Conference Reject
M#TRANS	Transfer
M#TRANS_ACK	Transfer Acknowledge
M#TRANS_REJ	Transfer Reject
M#ASSOC	Associated
M#ASSOC_ACK	Associated Acknowledge
M#DROP	Drop
M#DROP_ACK	Drop Acknowledge
M#DROP_REJ	Drop Reject
M#HOLD	Hold
M#HOLD_ACK	Hold Acknowledge
M#HOLD_REJ	Hold Reject
M#RECONN	Reconnect
M#RECONN_ACK	Reconnect Acknowledge
M#RECONN_REJ	Reconnect Reject
M#REDIR	Redirect
M#MAN_INFO	Management Information

3. INFORMATION ELEMENT TYPE IDENTIFIER

3.1. CODESET 0 IES

IE Identifier	AT&T Reference
I#SHIFT	Codeset Shift
I#BEARER_CAP	Bearer Capability
I#CAUSE	Cause
I#CALL_STATE	Call State
I#CHANNEL_ID	Channel Identification
I#PROGRESS_IND	Progress Indicator
I#TERM_CAPAB	Terminal Capabilities
I#KEYPAD	Keypad
I#SIGNAL	Signal
I#SWITCHHOOK	Switchhook
I#CALLING_NUM	Calling Party Number
I#CALLED_NUM	Called Party Number
I#RESTART_IND	Restart Indicator
I#LOW_LAY_COMP	Low Layer Compatability

3.2. CODESET 6 IES

IE Identifier	AT&T Reference
I#USER_CODE	User Code
I#ASSOC_TYPE	Associated Type
I#SELECT_CALL	Selected Call Appearance
I#ORIG_CALL	Origination Call Appearance
I#DEST_CALL	Destination Appearance
I#ENDPOINT_ID	Endpoint Identidier
I#KEYPAD_CTRL	Keypad Control
I#OTHER_CR	Other Call Reference
I#FEATURE_ACT	Feature Activation
I#FEATURE_IND	Feature Indication
I#ADJUNCT_CTRL	Adjunct Control
I#DISPLAY_CTRL	Display Control
I#DISPLAY_FLD	Display Field
I#MANAGEMENT	Management



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4. OCTET IDENTIFIER

The following list of constants has been defined for addressing particular octets within Information Elements:

OCTET_3,	OCTET_3A,			
OCTET_4,	OCTET_4A,	OCTET_4B,		
OCTET_5,	OCTET_5A,			
OCTET_6,				
OCTET_7,	OCTET_7C,	OCTET_7D,	OCTET_7E,	OCTET_7F,
OCTET_7G,	OCTET_7H,	OCTET_7I,	OCTET_7I.1,	OCTET_7I.2,

5. LAYER 3 TIMER

TIMER NAME	TIMER CONSTANT	DEFAULT DURATION (in seconds)
Timer T302	#T302	10
Timer T303	#T303	4
Timer T305	#T305	4
Timer T308	#T308	4
Timer T310	#T310	4
General Purpose Timer 1	#USER1	10
General Purpose Timer 2	#USER2	10

6. ACCESSING INFORMATION ELEMENT FIELD VALUES

The following sections contain all information for access of the information element parameter list including relevant octet identifier for all information elements, selector names associated with each information element parameter as well as a complete list of predefined constants for each standardized parameter value.

NOTE: Selector names which represent string parameters are indicated with a " ".

6.1. CODESET 0 IES

6.1.1. Shift IE (I#SHIFT)

Selector Name and related Constants	AT&T Reference
->SH_TYPE #NON_LOCKING #LOCKING	Locking/Non-locking Shift Type <i>Non Locking</i> <i>Locking</i>
->SH_CODESET #CODESET0 #CODESET5 #CODESET6 #CODESET7	Codeset Specified in Shift IE <i>Q.931 IE</i> <i>National Use IE</i> <i>Local Network Specific IE</i> <i>User Specific IE</i>

1.1.2. Bearer Capability IE (I#BEARER_CAP)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4, OCTET_5, OCTET_5A, OCTET_6, OCTET_7

Selector Name and related Constants	AT&T Reference
->BC_CODING_STANDARD #CCITT	Coding Standard, Octet 3 <i>CCITT</i>
->BC_TRANSFER_CAP #SPEECH #UNRESTRICTED #RESTRICTED #3.1KHZ_AUDIO	Information Transfer Capability, Octet 3 <i>Speech</i> <i>Unrestricted Digital Information</i> <i>Restricted Digital Information</i> <i>3.1 kHz Audio</i>
->BC_TRANSFER_MODE #CIRCUIT_MODE #PACKET_MODE	Transfer Mode, Octet 4 <i>Circuit Mode</i> <i>Packet Mode</i>
->BC_TRANSFER_RATE #CHANNEL_SIZE #64KBIT/S	Information Transfer Rate, Octet 4 <i>Used for packet mode</i> <i>64 kbit/s</i>
->BC_LAYER1_ID #LAYER1	Layer 1 Identification, Octet 5 <i>User Info Layer 1 Protocol</i>
->BC_L1_PROTOCOL #RATE_ADAPTION_V110/X30 #G.711_ULAW	Layer 1 Protocol Identifier, Octet 5 <i>Rate Adaption V.110/X.30</i> <i>Recommendation G.711 u-law</i>
->BC_SYNC/ASYNC #SYNCHRONOUS	Synchronous or Asynchronous, Octet 5a <i>Synchronous</i>
->BC_USER_RATE #56KBIT/S	User rate, Octet 5a <i>56kbit/s</i> <i>Recommendation V.6</i>
->BC_LAYER2_ID #LAYER2	Layer Identification, Octet 6 <i>User Info Layer 2 Protocol</i>
->BC_L2_PROTOCOL #X.25_LINK	Layer 2 Protocol Identifier, Octet 6 <i>Recommendation X.25, Link Layer</i>
->BC_LAYER3_ID #LAYER3	Layer 3 Identification, Octet 7 <i>User Info Layer 3 Protocol</i>
->BC_L3_PROTOCOL #X.25_PACKET	Layer 3 Protocol Identifier, Octet 7 <i>Recommendation X.25, Packet Layer</i>

6.1.3. Cause IE (I#CAUSE)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4,

Selector Name and related Constants	AT&T Reference
->C_CODING_STANDARD #CCITT	Coding Standard, Octet 3 <i>CCITT</i>
->C_LOCATION #USER #LOCAL_PRIVATE #LOCAL_PUBLIC #TRANSIT #REMOTE_PUBLIC #REMOTE_PRIVATE #INTERNAT_NETWORK #BEYOND_INTERWORK	Location, Octet 3 <i>User</i> <i>Local Private Network</i> <i>Local Public Network</i> <i>Transit Network</i> <i>Remote Public Network</i> <i>Remote Private Network</i> <i>International Network</i> <i>Network Beyond Interworking Point</i>
->C_CAUSE_CLASS #NORMAL0 ->C_CAUSE_VALUE #UNASSIGNED_NUMBER #NO_ROUTE_TO_TRANSIT	Cause Class, Octet 4 <i>Normal Event Class 0</i> Cause Value, Octet 4 <i>Unassigned Number</i> <i>No Route to Transit Network</i>
->C_CAUSE_CLASS #NORMAL1 ->C_CAUSE_VALUE #NORMAL_CLEARING #USER_BUSY #NO_USER_RESPOND #CALL_REJECTED #NUMBER_CHANGED #INVALID_NUMBER_FORMAT #FACILITY_REJECTED #STATUS_ENQ_RESPONSE #NORMAL_UNSPECIFIED	Cause Class, Octet 4 <i>Normal Event Class 1</i> Cause Value, Octet 4 <i>Normal call clearing</i> <i>User Busy</i> <i>No User Responding</i> <i>Call Rejected</i> <i>Number Changed</i> <i>Invalid Number Format</i> <i>Facility Rejected</i> <i>Response to STATUS ENQUIRY</i> <i>Normal, Unspecified</i>

Selector Name and related Constants	AT&T Reference
->C_CAUSE_CLASS #RESOURCE_UNAVAIL ->C_CAUSE_VALUE #NO_CHANNEL_AVAIL #QUEUED #TEMPORARY_FAILURE #SWITCH_CONGESTION #ACCESS_INFO_DISCARD	Cause Class, Octet 4 <i>Resource not Available</i> Cause Value, Octet 4 <i>No Circuit/Channel Available</i> <i>Queued</i> <i>Temporary Failure</i> <i>Switching Equipment Congestion</i> <i>Access Information Discarded</i>
->C_CAUSE_CLASS #SERVICE_UNAVAIL ->C_CAUSE_VALUE #FAC_NOT_SUBSCRIBED #OUTGOING_BARRED #INCOMING_BARRED #BEARER_UNAVAIL #SERVICE_UNAVAIL_UNSPEC	Cause Class, Octet 4 <i>Service not Available</i> Cause Value, Octet 4 <i>Requested facility not subscribed</i> <i>Outgoing calls barred</i> <i>Incoming calls barred</i> <i>Bearer Capability not Available</i> <i>Service not Available</i>
->C_CAUSE_CLASS #SERVICE_UNIMPL ->C_CAUSE_VALUE #BEARER_SERVICE_UNIMPL #CHANNEL_TYPE_UNIMPL #FAC_UNIMPL	Cause Class, Octet 4 <i>Service not implemented</i> Cause Value, Octet 4 <i>Bearer capability not implemented</i> <i>Channel Type not Implemented</i> <i>Requested facility not implemented</i>
->C_CAUSE_CLASS #INVALID_MESSAGE ->C_CAUSE_VALUE #INVALID_CALL_REF #CHANNEL_NONEXISTANT #INCOMPATIBLE_DEST #INV_TRANS_NET	Cause Class, Octet 4 <i>Invalid Message</i> Cause Value, Octet 4 <i>Invalid Call Reference Value</i> <i>Channel not Existant</i> <i>Incompatible Destination</i> <i>Invalid transit network selection</i>
->C_CAUSE_CLASS #PROTOCOL_ERROR ->C_CAUSE_VALUE #MAND_IE_MISSING #MESSAGE_TYPE_UNIMPL #MESSAGE_INCOMPAT #INVALID_IE_CONTENTS #PROTOCOL_ERROR_UNSPEC	Cause Class, Octet 4 <i>Protocol Error</i> Cause Value, Octet 4 <i>Mandatory IE is Missing</i> <i>Message Type Non-existing</i> <i>Messgae not Compatible</i> <i>Invalid IE Contents</i> <i>Protocol error</i>
->C_CAUSE_CLASS #INTERWORKING ->C_CAUSE_VALUE #INTERWORK_UNSPEC	Cause Class, Octet 4 <i>Interworking</i> Cause Value, Octet 4 <i>Interworking</i>

6.1.4. Call State IE (I#CALL_STATE)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->CS_CALL_STATE #NULL #CALL_INIT #OVERLAP_SENDING #OUTGOING_CALL_PROC #CALL_DELIVERED #CALL_RECEIVED #CONNECT_REQUEST #INCOMING_CALL_PROC #ACTIVE #DISC_REQUEST #DISC_INDICATION #RELEASE_REQUEST	Call State, Octet 3 <i>Null</i> <i>Call Init</i> <i>Overlap Sending</i> <i>Outgoing Call Proceeding</i> <i>Call Delivered</i> <i>Call Request</i> <i>Connect Request</i> <i>Incomming Call Proceeding</i> <i>Active</i> <i>Disconnected Request</i> <i>Disconnected Indication</i> <i>Release Request</i>

6.1.5. Channel Identification IE (I#CHANNEL_ID)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->CID_INT_PRESENT #IMPLICIT	Interface Identifier Present, Octet 3 <i>Implicitly Identified</i>
->CID_INT_TYPE #BASIC_INTERFACE	Interface Type, Octet 3 <i>Basic Interface</i>
->CID_PREF/EXCL #EXCLUSIVE #PREFERRED	Preferred/Exclusive, Octet 3 <i>Exclusive</i> <i>Preferred</i>
->CID_DCHANNEL #D_CHANNEL #NOT_D_CHANNEL	D-channel Indicator, Octet 3 <i>D-Channel Identified</i> <i>Not D-Channel</i>
->CID_INFO_CHAN_SEL #NO_CHANNEL #B1_CHANNEL #B2_CHANNEL #ANY_CHANNEL	Information Channel Selection, Octet 3 <i>No Channel</i> <i>B1 Channel</i> <i>B2 Channel</i> <i>Any Channel</i>

1.1.6. Progress Indicator IE (I#PROGRESS_IND)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

Selector Name and related Constants	AT&T Reference
->PI_CODING_STANDARD #CCITT	Coding Standard, Octet 3 <i>CCITT</i>
->PI_LOCATION #USER #LOCAL_PRIVAT #LOCAL_PUBLIC #TRANSIT #REMOTE_PUBLIC #REMOTE_PRIVATE #BEYOND_INTERWORK	Location, Octet 3 <i>User</i> <i>Local Private Network</i> <i>Local Public Network</i> <i>Transit Network</i> <i>Remote Public Network</i> <i>Remote Private Network</i> <i>Network Beyond Interworking Point</i>
->PI_DESCRIPTION #NOT_END_TO_END #DEST_NON_ISDN #ORIG_NON_ISDN #RETURNED_TO_ISDN #INBAND_INFO_AVAIL	Progress Description, Octet 4 <i>Call is not end-to-end ISDN</i> <i>Destination Address is non-ISDN</i> <i>Origination Address is non-ISDN</i> <i>Call has Returned to the ISDN</i> <i>In-band Info now Available</i>

1.1.7. Terminal Capabilities IE (I#TERM_CAPAB)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->TC_CODING_STANDARD #CCITT	Coding Standard, Octet 3 <i>CCITT</i>
->TC_DESCRIPTION #TYPE2_STIMULUS	Capability Description, Octet 3 <i>Type 2 stimulus mode terminal</i>

1.1.8. Keypad IE (I#KEYPAD)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->K_KEYPAD	Keypad, Octet 3 *

6.1.9. Signal IE (I#SIGNAL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->SI_VALUE	Signal Value, Octet 3
#DIAL_ON	Dial Tone on
#RING_BACK_ON	Ring Back Tone on
#INTERCEPT_ON	Intercept Tone on
#CONGESTION_ON	Network Congestion Tone on
#BUSY_ON	Busy Tone on
#CONFIRM_ON	Confirm Tone on
#ANSWER_ON	Answer Tone on
#CALL_WAITING_ON	Call Waiting Tone on
#OFF_HOOK_ON	Off-hook Warning Tone on
#CUSTOM_ON	Custom tone on
#RECALL_DIAL_ON	Recall dial tone on
#BUSY_VERIFY_ON	Busy verify tone on
#ERROR_ON	Error tone on
#STUTTER_DIAL_ON	Stutter dial tone on
#EXPENSIVE_ROUTING_ON	Expensive routing tone on
#TONES_OFF	Tones off
#ALERTING_ON_0	Alerting on – Pattern 0
#ALERTING_ON_1	Alerting on – Pattern 1
#ALERTING_ON_2	Alerting on – Pattern 2
#ALERTING_ON_3	Alerting on – Pattern 3
#ALERTING_ON_4	Alerting on – Pattern 4
#ALERTING_ON_5	Alerting on – Pattern 5
#ALERTING_ON_6	Alerting on – Pattern 6
#ALERTING_ON_7	Alerting on – Pattern 7
#ALERTING_OFF	Alerting off
#UNSPEC_TONE	Unspecified tone

6.1.10. Switchhook IE (I#SWITCHHOOK)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->SW_VALUE	Switchhook Value, Octet 3
#ON_HOOK	On-hook
#OFF_HOOK	Off-hook

1.1.11. Calling Number IE (I#CALLING_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A, OCTET_4

Selector Name and related Constants	AT&T Reference
->CLGN_NUMBER_TYPE #UNKNOWN #INTERNATIONAL #NATIONAL #SUBSCRIBER #ABBREVIATED	Type of Number, Octet 3 <i>Unknown</i> <i>Other International Standards</i> <i>National Standard</i> <i>Subscriber Number</i> <i>Abbreviated Number</i>
->CLGN_NUMBERING_PLAN #UNKNOWN_PLAN #ISDN_PLAN #PRIVATE_PLAN	Numbering Plan Identification, Octet 3 <i>Unknown</i> <i>ISDN Numbering Plan E.164</i> <i>Private Numbering Plan</i>
->CLGN_PRESENTATION #PRESENT_ALLOWED #PRESENT_RESTRICTED #NUMBER_UNAVAIL	Presentation Indicator, Octet 3a <i>Presentation Allowed</i> <i>Presentation Restricted</i> <i>Number Not Available Due to Interworking</i>
->CLGN_SCREENING #UNSCREENED #VERIFY_PASSED #VERIFY_FAILED #NETWORK_PROVIDED	Screening indicator, Octet 3a <i>User-Provided, Not Screened</i> <i>User-Provided, Verified and Passed</i> <i>User-Provided, Verified and Failed</i> <i>Network-Provided</i>
->CLGN_NUMBER	Calling Number Digits, Octet 4 *

1.1.12. Called Number IE (I#CALLED_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

Selector Name and related Constants	AT&T Reference
->CLDN_NUMBER_TYPE #INTERNATIONAL #NATIONAL #LOCAL_DIRECTORY	Type of Number, Octet 3 <i>Other International Standards</i> <i>National Standard</i> <i>Local Directory Number</i>
->CLDN_NUMBERING_PLAN #ISDN_PLAN #PRIVATE_PLAN	Numbering Plan Identification, Octet 3 <i>ISDN Numbering Plan E.164</i> <i>Private Numbering Plan</i>
->CLDN_NUMBER	Called Number Digits, Octet 4 *

6.1.13. Restart Indicator IE (I#RESTART_IND)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->RI_CLASS #INDICATED_CHANNEL #SINGLE_INTERFACE	Class of Channel or Interface, Octet 3 <i>Indicated B-Channel</i> <i>Single Interface</i>

6.1.14. Low Layer Compatability IE (I#LOW_LAY_COMP)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4, OCTET_4A, OCTET_4B, OCTET_5, OCTET_5A, OCTET_6, OCTET_7

Selector Name and related Constants	AT&T Reference
->LL_CODING_STANDARD #CCITT #INTERNATIONAL #NATIONAL #NETWORK_SPECIFIC	Coding Standard, Octet 3 <i>CCITT</i> <i>Other International Standards</i> <i>National Standard</i> <i>Standard Defined for Identified Location</i>
->LL_TRANSFER_CAP #SPEECH #UNRESTRICTED #RESTRICTED #3.1KHZ_AUDIO	Information Transfer Capability, Octet 3 <i>Speech</i> <i>Unrestricted Digital Information</i> <i>Restricted Digital Information</i> <i>3.1 kHz Audio</i>
->LL_TRANSFER_MODE #CIRCUIT_MODE #PACKET_MODE	Transfer Mode, Octet 4 <i>Circuit Mode</i> <i>Packet Mode</i>
->LL_TRANSFER_RATE #CHANNEL_SIZE #64KBIT/S	Information Transfer Rate, Octet 4 <i>Used for packet mode</i> <i>64 kbit/s</i>
->LL_STRUCTURE #DEFAULT #8KHZ_INTEGRITY #SDU_INTEGRITY #UNSTRUCTURED	Structure, Octet 4a <i>Default</i> <i>8 kHz Integrity</i> <i>Service Data Unit Integrity</i> <i>Unstructured</i>
->LL_CONFIGURATION #POINT_TO_POINT	Configuration, Octet 4a <i>Point-to-point</i>
->LL_ESTABLISHMENT #DEMAND	Establishment, Octet 4a <i>Demand</i>
->LL_SYMMETRY #BIDIRECT_SYMMETRIC #BIDIRECT_ASYMMETRIC #UNIDIRECT_ORIG_DEST #UNIDIRECT_DEST_ORIG	Symmetry, Octet 4b <i>Bidirectional Symmetric</i> <i>Bidirectional Asymmetric</i> <i>Unidirectional orig -> dest</i> <i>Unidirectional dest -> orig</i>

Selector Name and related Constants	AT&T Reference
->LL_TRANSFER_RATE_4B #CHANNEL_SIZE #64KBIT/S	Information Transfer Rate (D->O), Octet 4b <i>Used for packet mode</i> 64 kbit/s
->LL_LAYER1_ID #LAYER1	Layer 1 Identification, Octet 5 <i>User Info Layer 1 Protocol</i>
->LL_L1_PROTOCOL #RATE_ADAPTION_V110/X30 #G.711_ULAW #G.711_ALAW #G.721_ADPCM #NON_CCITT	Layer 1 Protocol Identifier, Octet 5 <i>Rate Adaption V.110 / X.30</i> <i>Recommendation G.711 u-law</i> <i>Recommendation G.711 A-law</i> <i>Recommendation G.721 32 kbit/s ADPCM</i> <i>Non-CCITT rate adaption</i>
->LL_SYNC/ASYNCR #SYNCHRONOUS #ASYNCHRONOUS	Synchronous/Asynchronous, Octet 5a <i>Synchronous</i> <i>Asynchronous</i>
->LL_USER_RATE #UNDEFINED #0.6KBIT/S #1.2KBIT/S #2.4KBIT/S #3.6KBIT/S #4.8KBIT/S #7.2KBIT/S #8KBIT/S #9.6KBIT/S #14.4KBIT/S #16KBIT/S #19.2KBIT/S #32KBIT/S #48KBIT/S #56KBIT/S	User rate, Octet 5a <i>Undefined</i> 0.6kbit/s <i>Recommendation V.6 and X.1</i> 1.2kbit/s <i>Recommendation V.6</i> 2.4kbit/s <i>Recommendation V.6</i> 3.6kbit/s <i>Recommendation V.6</i> 4.8kbit/s <i>Recommendation V.6 and X.1</i> 7.2kbit/s <i>Recommendation V.6</i> 8kbit/s <i>Recommendation I.460</i> 9.6kbit/s <i>Recommendation V.6 and X.1</i> 14.4kbit/s <i>Recommendation V.6</i> 16kbit/s <i>Recommendation I.460</i> 19.2kbit/s <i>Recommendation V.6</i> 32kbit/s <i>Recommendation I.460</i> 48kbit/s <i>Recommendation V.6 and X.1</i> 56kbit/s <i>Recommendation V.6</i>
->LL_LAYER2_ID #LAYER2	Layer 2 Identification, Octet 6 <i>User Info Layer 2 Protocol</i>
->LL_L2_PROTOCOL #Q.921 #X.25_LINK	Layer 2 Protocol Identifier, Octet 6 <i>Recommendation Q.921 (I.441)</i> <i>Recommendation X.25, Link level</i>
->LL_LAYER3_ID #LAYER3	Layer 3 identification, Octet 7 <i>User Info Layer 3 Protocol</i>
->LL_L3_PROTOCOL #Q.931 #X.25_PACKET	Layer 3 Protocol Identifier, Octet 7 <i>Recommendation Q.931 (I.451)</i> <i>Recommendation X.25, Packet Layer</i>

1.2. CODESET 6 IES

1.2.1. User Code IE (I#USER_CODE)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

Selector Name and related Constants	AT&T Reference
->UC_TYPE #ANY_CODE #ACCOUNT_CODE #LOGIN_DIGITS #SUBSCRIBER_ID #AUTHOR_CODE	Type of User Code, Octet 3 <i>Any user code</i> <i>Account code</i> <i>Login digits</i> <i>Subscriber id</i> <i>Authorization code</i>
->UC_VALUE	User Code Value, Octet 4 *

1.2.2. Associated Type IE (I#ASSOC_TYPE)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->AT_STATUS_VALUE #SETUP #CONNECT #HOLD #RECONNECT #EXCLUSION #CONNECT_DENIED #CLEAR_DENIED	Status Value, Octet 3 <i>Setup</i> <i>Connect</i> <i>Hold</i> <i>Reconnect</i> <i>Exclusion</i> <i>Connect denied</i> <i>Clearing denied</i>

1.2.3. Selected Call Appearance IE (I#SELECT_CALL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->SCA_BUTTON_NUM	Button Number, Octet 3

6.2.4. Origination Call Appearance IE (I#ORIG_CALL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->OCA_VALUE	Origination Call Appearance Value, Octet 3

6.2.5. Destination Call Appearance IE (I#DEST_CALL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->DCA_VALUE	Destination Call Appearance Value, Octet 3

6.2.6. Endpoint Identifier IE (I#ENDPOINT_ID)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

Selector Name and related Constants	AT&T Reference
->EID_USER_SERVICE_ID	User Service Identifier, Octet 3
->EID_INTERPRETER	Interpreter, Octet 4
->EID_TERMINAL_ID	Terminal Identifier, Octet 4

6.2.7. Keypad Control IE (I#KEYPAD_CTRL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->KC_CR_VALUE_TYPE #NULL_CALL_REF #NON_NULL_CALL_REF	Call Reference Value Type, Octet 3 <i>Null call reference</i> <i>Non-null call reference</i>

6.2.8. Other Call Reference IE (I#OTHER_CR)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->OCR_FLAG #ORIG_SIDE #DEST_SIDE	Flag, Octet 3 <i>Origination side</i> <i>Destination side</i>
->OCR_VALUE	Other Call Reference Value, Octet 3

6.2.9. Feature Activation IE (I#FEATURE_ACT)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

Selector Name and related Constants	AT&T Reference
->FA_BUTTON_TYPE #UNKNOWN #CALL_APPEARANCE #FEATURE_BUTTON	Button Type, Octet 3 <i>Unknown</i> <i>Call appearance button</i> <i>Feature button</i>
->FA_MODULE_NUM	Module Number, Octet 3
->FA_STATUS_TYPE	Status Type, Octet 3
->FA_BUTTON_NUM	Button Number, Octet 4

6.2.10. Feature Indication IE (I#FEATURE_IND)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4, OCTET_5, OCTET_6, OCTET_7

Selector Name and related Constants	AT&T Reference
->FI_BUTTON_TYPE #UNKNOWN #CALL_APPEARANCE #FEATURE_BUTTON #NONE_APPLICABLE	Button Type, Octet 3 <i>Unknown</i> <i>Call appearance button</i> <i>Feature button</i> <i>None applicable</i>
->FI_MODULE_NUM	Module Number, Octet 3
->FI_STATUS_TYPE #FEATURE_NUMBER_STATUS #FEATURE_BUTTON_STATUS #MULTIPLE_BUTTON_STATUS #MAINTENANCE_STATUS	Status Type, Octet 3 <i>Feature number status</i> <i>Feature button status</i> <i>Multiple button status</i> <i>Maintenance status</i>

6.2.10.1. Further Octets for Status Type: #FEATURE_NUMBER_STATUS

Selector Name and related Constants	AT&T Reference
->FI_NUMBER	Feature Number, Octet 4
->FI_STATUS #ACTIVATED #DEACTIVATED #PENDING #LOCAL_HOLD #REMOTE_HOLD #CONFIRMED #REQUESTED_STATE #REJECTED	Status, Octet 5 <i>Activated</i> <i>Deactivated</i> <i>Pending</i> <i>Local hold</i> <i>Remote hold</i> <i>Confirmed</i> <i>Already in requested state</i> <i>Rejected</i>
->FI_ADD_INFO	Additional Information, Octet 6 * (for repetition of Octet 4 and Octet 5)

1.2.10.2. Further Octets for Status Type: #FEATURE_BUTTON_STATUS

Selector Name and related Constants	AT&T Reference
->FI_NUMBER	Feature Number, Octet 4
->FI_INDICATOR	Indicator, Octet 5
->FI_STATUS #ACTIVATED #DEACTIVATED #PENDING #LOCAL_HOLD #REMOTE_HOLD #CONFIRMED #REQUESTED_STATE #REJECTED	Status, Octet 5 <i>Activated</i> <i>Deactivated</i> <i>Pending</i> <i>Local hold</i> <i>Remote hold</i> <i>Confirmed</i> <i>Already in requested state</i> <i>Rejected</i>
->FI_ADD_INFO	Additional Information, Octet 6 * (for repetition of Octet 4 and Octet 5)

1.2.10.3. Further Octets for Status Type: #MULTIPLE_BUTTON_STATUS

Selector Name and related Constants	AT&T Reference
->FI_NUMBER	Feature Button Number, Octet 4
->FI_NUM_BUTTONS	Number of Buttons, Octet 5
->FI_STATUS	Status, Octet 6
->FI_ADD_INFO	Additional Information, Octet 7 * (for more Status Information)

1.2.10.4. Further Octets for Status Type: #MAINTENANCE_STATUS

Selector Name and related Constants	AT&T Reference
->FI_MAINTENANCE #ALL_INDICATORS_OFF	Maintenance, Octet 4 <i>Turn all indicators off</i>

1.2.10.5. Further Octets for other Status Type

Selector Name and related Constants	AT&T Reference
->FI_ADD_INFO	Additional Information, Octet 4 *

6.2.11. Adjunct Control IE (I#ADJUNCT_CTRL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->AC_VALUE #OFF #ON	Adjunct Control Value, Octet 3 <i>Off</i> <i>On</i>

6.2.12. Display Control IE (I#DISPLAY_CTRL)

Possible octet inclusions/exclusions:

OCTET_3

Selector Name and related Constants	AT&T Reference
->DC_MODE #NO_CHANGE #NORMAL #INSPECT #MISC_DISPLAY_INFO #MSG_RETRIEVAL #ELECTRONIC_DIRECTORY	Display mode, Octet 3 <i>No change</i> <i>Normal</i> <i>Inspect</i> <i>Misc. display information</i> <i>Message retrieval</i> <i>Electronic directory query</i>

6.2.13. Display Field IE (I#DISPLAY_FLD)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4, OCTET_5

Selector Name and related Constants	AT&T Reference
->DF_MODE #NORMAL #INSPECT #MISC_DISPLAY_INFO #MSG_RETRIEVAL #ELECTRONIC_DIRECTORY	Display Mode, Octet 3 <i>Normal</i> <i>Inspect</i> <i>Misc. display information</i> <i>Message retrieval</i> <i>Electronic directory query</i>
->DF_SUBMODE #NO_SUBMODE #DIRECT #REDIRECTED	Submode, Octet 3 <i>No submode applicable</i> <i>Direct</i> <i>Redirected</i>
->DF_TYPE #CALL_APPEAR_ID #CALLED_PARTY_ID #CALLING_PARTY_ID #CALLED_PARTY_NAME #CALLING_PARTY_NAME #ORIG_PERMISSION #ISDN_CALL_ID #MISC_CALL_INFO #ENTIRE_DISPLAY #DATE_AND_TIME	Display Field Type, Octet 4 <i>Call appearance ID</i> <i>Called party ID</i> <i>Calling party ID</i> <i>Called party name</i> <i>Calling party name</i> <i>Originating permission</i> <i>ISDN call identification</i> <i>Misc. call information</i> <i>Entire display</i> <i>Date and time of day</i>
->DF_INFO	Display Information, Octet 5 *

6.2.14. Management IE (I#MANAGEMENT)

Possible octet inclusions/exclusions:

OCTET_7C, OCTET_7D, OCTET_7E, OCTET_7F, OCTET_7G,
OCTET_7H, OCTET_7I, OCTET_7I.1, OCTET_7I.2

Selector Name and related Constants	AT&T Reference
->M_PROTOCOL_DISCR #AT&T_ISDN_PROTOCOL	Protocol Discriminator, Octet 7c <i>AT&T ISDN management protocol</i>
->M_TRANSACTION_REF	Transaction Reference, Octet 7d
->M_OP_CLASS #UNCONFIRMED_OPERATION #CONFIRMED_OPERATION #RETURN_RESULT #RETURN_RESULT_CONT #RETURN_ERROR #REJECT	Operation Class, Octet 7e <i>Unconfirmed operation</i> <i>Confirmed operation</i> <i>Return result</i> <i>Return result continued</i> <i>Return error</i> <i>Reject</i>
->M_OP_TYPE #ACTION #EVENT_REPORT #GET #SET	Operation Type, Octet 7e <i>Action</i> <i>Event report</i> <i>Get</i> <i>Set</i>
->M_CODE for Operation Type #ACTION #ACTIVATE_LOOPBACK #DEACTIVATE_LOOPBACK #RESET for Operation Type #EVENT_REPORT #INIT_REQUEST #ENDPOINT_SERV_CHANGE for Operation Type #GET #SERVICE_PROFILE_INFO #CALL_STATUS_INFO #EQUIPMENT_INFO for Operation Type #SET #SERVICE_PROFILE_INFO #ADDRESS_INFO for Operation Class #REJECT #UNSPEC_ERROR #PROTOCOL_VIOLATION #UNREC_OPERATION #NON_SYNC_OPERATION	Code, Octet 7f <i>Activate loopback</i> <i>Deactivate loopback</i> <i>Reset</i> <i>Initialization request</i> <i>Endpoint service state change</i> <i>Service profile information</i> <i>Call status information</i> <i>Equipment information</i> <i>Service profile information</i> <i>Address information</i> <i>Unspecified error</i> <i>Protocol violation</i> <i>Unrecognized operation</i> <i>Non-synchronous operation not supported</i>

Selector Name and related Constants	AT&T Reference
->M_PARAMETER_ID #SERVICE_PROFILE_ID #ENDPOINT_ID #CALL_REF_ID #CALL_STATE_ID #CHANNEL_ID #SERVICE_STATE #SERVICE_MSG_ERROR #LOOPBACK_LOCATION #SUPPL_CAPABILITIES #CAUSE_ID	Parameter Identifier, Octet 7g <i>Service profile identifier</i> <i>Endpoint identifier</i> <i>Call reference identifier</i> <i>Call state identifier</i> <i>Channel identifier</i> <i>Service state</i> <i>Service message error code</i> <i>Loopback location</i> <i>Supplementary capabilities</i> <i>Cause identifier</i>
->M_PARAMETER_LEN	Length of Parameter, Octet 7h

6.2.14.1. Parameter Field for Parameter Identifier: #SERVICE_PROFILE_ID

Selector Name and related Constants	AT&T Reference
->M_SPID_VALUE	SPID value, Octet 7i *

6.2.14.2. Parameter Field for Parameter Identifier: #ENDPOINT_ID

Selector Name and related Constants	AT&T Reference
->M_USID	USID, Octet 7i.1
->M_FLAG #RESTRICTED_SERVICE #FULL_SERVICE	Flag, Octet 7i.2 <i>Restricted service</i> <i>Full service</i>
->M_TID	TID, Octet 7i.2

6.2.14.3. Parameter Field for Parameter Identifier: #CALL_REF_ID

Selector Name and related Constants	AT&T Reference
->M_FLAG #ORIG_SIDE #DEST_SIDE	Flag, Octet 7i <i>Origination side</i> <i>Destination side</i>
->M_CALL_REF	Call reference value, Octet 7i

6.2.14.4. Parameter Field for Parameter Identifier: #CALL_STATE_ID

Selector Name and related Constants	AT&T Reference
->M_CALL_STATE	Call State, Octet 7i
#NULL	<i>Null</i>
#CALL_INIT	<i>Call Init</i>
#OVERLAP_SENDING	<i>Overlap Sending</i>
#OUTGOING_CALL_PROC	<i>Outgoing Call Proceeding</i>
#CALL_DELIVERED	<i>Call Delivered</i>
#CALL_RECEIVED	<i>Call Request</i>
#CONNECT_REQUEST	<i>Connect Request</i>
#INCOMING_CALL_PROC	<i>Incomming Call Proceeding</i>
#ACTIVE	<i>Active</i>
#DISC_REQUEST	<i>Disconnected Request</i>
#DISC_INDICATION	<i>Disconnected Indication</i>
#RELEASE_REQUEST	<i>Release Request</i>

6.2.14.5. Parameter Field for Parameter Identifier: #CHANNEL_ID

Selector Name and related Constants	AT&T Reference
->M_INT_PRESENT	Interface id. present, Octet 7i
#IMPLICIT	<i>Implicitly Identifier</i>
->M_INT_TYPE	Interface Type, Octet 7i
#BASIC_INTERFACE	<i>Basic Interface</i>
->M_PREF / EXCL	Preferred / Exclusive, Octet 7i
#PREFERRED	<i>Preferred</i>
#EXCLUSIVE	<i>Exclusive</i>
->M_DCHANNEL	D-Channel Indicator, Octet 7i
#NOT_D_CHANNEL	<i>Not D-Channel</i>
#D_CHANNEL	<i>D-Channel</i>
->M_INFO_CHAN_SEL	Info Channel Selection, Octet 7i
#NO_CHANNEL	<i>No Channel</i>
#B1_CHANNEL	<i>B1 Channel</i>
#B2_CHANNEL	<i>B2 Channel</i>
#ANY_CHANNEL	<i>Any Channel</i>

6.2.14.6. Parameter Field for Parameter Identifier: #SERVICE_STATE

Selector Name and related Constants	AT&T Reference
->M_SERVICE_STATE	Service State, Octet 7i
#IN_SERVICE	<i>In service</i>
#OUT_OF_SERVICE	<i>Out of service</i>

1.2.14.7. Parameter Field for Parameter Identifier: #SERVICE_MSG_ERROR

Selector Name and related Constants	AT&T Reference
->M_ERROR_CODE #TEST_IN_PROGRESS	Error Code, Octet 7i <i>Test in Progress</i>

1.2.14.8. Parameter Field for Parameter Identifier: #LOOPBACK_LOCATION

Selector Name and related Constants	AT&T Reference
->M_LOOPBACK	Loopback Location, Octet 7i *

1.2.14.9. Parameter Field for Parameter Identifier: #SUPPL_CAPABILITIES

Selector Name and related Constants	AT&T Reference
->M_DISPLAY #SUPPORTED #NOT_SUPPORTED	Display, Octet 7i.1 <i>Display capabilities supported</i> <i>Display capabilities not supported</i>
->M_SUPPL_DATA #SUPPORTED #NOT_SUPPORTED	Suppl. Data, Octet 7i.1 <i>Supplementary data services supported</i> <i>Supplementary data services not supported</i>
->M_FC #SUPPORTED #NOT_SUPPORTED	FC, Octet 7i.1 <i>Flexible call offering supported</i> <i>Flexible call offering not supported</i>
->M_TMF #SUPPORTED #NOT_SUPPORTED	TMF, Octet 7i.1 <i>Terminal management feature supported</i> <i>Terminal manag. feature not supported</i>
->M_ASSOC #SUPPORTED #NOT_SUPPORTED	ASSOC, Octet 7i.1 <i>Key system protocol supported</i> <i>Key system protocol not supported</i>
->M_LOOP #SUPPORTED #NOT_SUPPORTED	Loop, Octet 7i.2 <i>Loopback capabilities supported</i> <i>Loopback capabilities not supported</i>
->M_SVC #SUPPORTED #NOT_SUPPORTED	Svc., Octet 7i.2 <i>Endpoint service msg procedures supported</i> <i>Endpoint service msg procedures not supp.</i>
->M_INIT #SUPPORTED #NOT_SUPPORTED	Init., Octet 7i.2 <i>Endpoint initialization supported</i> <i>Endpoint initialization not supported</i>

1.2.14.10. Parameter Field for Parameter Identifier: #CAUSE_ID

Selector Name and related Constants	AT&T Reference
->M_CAUSE #CHANNEL_IN_USE #MNG_PARAM_UNKNOWN #INVALID_PARAM	Cause Value, Octet 7i <i>Channel in use</i> <i>Provided management parameter unknown</i> <i>Invalid parameter value</i>

1.2.14.11. Parameter Field for Other Parameter Identifier

Selector Name and related Constants	AT&T Reference
->M_PARAMETER_VAL	Parameter Value, Octet 7i *

Note that only **one** Parameter may be coded/decoded in a Management IE.

1.1.1. General Information

Name: _____ Address: _____

1.1.2. Academic Information	1.1.3. Personal Information
1.1.2.1. Degree Program	1.1.3.1. Date of Birth
1.1.2.2. Major	1.1.3.2. Sex
1.1.2.3. Minor	1.1.3.3. Marital Status
1.1.2.4. GPA	1.1.3.4. Nationality

1.1.4. Contact Information

1.1.4.1. Phone	1.1.4.2. E-mail
1.1.4.1.1. Home	1.1.4.2.1. Address
1.1.4.1.2. Office	1.1.4.2.2. Domain

1.1.5. Other Information

1.1.5.1. Languages Spoken

1.1.5.2. Hobbies

1.1.5.3. Sports

1.1.5.4. Volunteering

1.1.5.5. Other

1.1.5.6. Signature

1.1.5.7. Date

1.1.5.8. Place

1.1.5.9. Other

1.1.5.10. Other

1.1.5.11. Other

1.1.5.12. Other

1.1.5.13. Other

1.1.5.14. Other

1.1.5.15. Other

1.1.5.16. Other

1.1.5.17. Other

1.1.5.18. Other

1.1.5.19. Other

1.1.5.20. Other

